

# SE MRC College Algebra Content Review

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## Determinants and Cramer's Rule Section 6.5

### Learning Objectives:

1. Evaluate a second-order determinant.
2. Solve a system of linear equations in two variables using Cramer's rule.
3. Evaluate a third-order determinant.
4. Solve a system of linear equations in three variables using Cramer's rule.
5. Evaluate higher-order determinants.

3. Evaluate the determinant of the matrix.

$$\begin{bmatrix} 4 & -2 \\ 10 & -4 \end{bmatrix}$$

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1. Evaluate the determinant.

$$\begin{vmatrix} 2 & 7 \\ 4 & 9 \end{vmatrix}$$

4. Use Cramer's rule to solve the system or to determine that the system is inconsistent or contains dependent equations.

$$x + y = 6$$

$$x - y = 4$$

Find the determinants.

$$D =$$

$$D_x =$$

$$D_y =$$

2. Evaluate the determinant.

$$\begin{vmatrix} -3 & 12 \\ 7 & -8 \end{vmatrix}$$

5. Use Cramer's rule to solve the system.

$$2x + 2y = 20$$

$$7x - 2y = 16$$

6. Use Cramer's rule to solve the system.

$$5x - 3y = 8$$

$$7x + 4y = 44$$

7. Use Cramer's rule to solve the system or to determine that the system is inconsistent or contains dependent equations.

$$\begin{cases} 3x - 3y = 3 \\ 2x + 3y = 17 \end{cases}$$

8. Use Cramer's rule to solve the system or to determine that the system is inconsistent or contains dependent equations.

$$\begin{cases} 5x = 3y + 8 \\ 7x = 44 - 4y \end{cases}$$

**Answer Key:**

1.	-10
2.	-60
3.	4
4.	$D = -2$ $D_x = -10$ $D_y = -2$ The solution set is {5, 1}.
5.	(4,6)
6.	(4,4)
7.	(4,3)
8.	(4,4)